ATOMIC ENERGY newsletter®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

Dear Sir:

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Contract for development of nuclear propulsion for aircraft, received by United Aircraft Corp. in May 1953 from the USAEC, has now been extended by the Commission to Sept. 30, 1960. The cost-plus fixed-fee contract, with an annual cost of about $15 million, covers completion of the engineering design of reactors suitable for use in an advanced aircraft propulsion system and the development of reactor components. The work is being done by United's Pratt & Whitney division at the Connecticut aircraft nuclear engine laboratory (CANEL) recently completed by the U. S. Air Force at Middletown, Conn. (Meanwhile a decision by President Eisenhower on the type of plane to use nuclear propulsion will be made shortly; request for such a decision had been made by the armed services. Data on preferred craft by Navy and Air Force were submitted. As project can call for an increase of as much as $2 billion in military spending, decision must be made before completion of budget for fiscal year 1959, which will be sent to Congress this month by the President.) (Other CONTRACT NEWS, p. 3 this LETTER.)

Offer by the U.S. to furnish plans and enriched uranium for nuclear propelled submarines to member nations of the North Atlantic Treaty Organization has provoked interest in France. The offer was made last month at the Paris meeting of the NATO countries. A French government spokesman has confirmed that studies now being made will be followed by negotiations between the French and the U. S. governments. (Other INTERNATIONAL NEWS, p. 3 this LETTER.)

Fallout data is now being exchanged by the U. S. with the Soviet Union; five samples of soil collected from different parts of the U. S. have recently been sent the Soviet Academy of Sciences. Each sample has the U. S. analysis of its strontium-90 content. In return, the USAEC expects to receive a similar number of samples of soil from Russia. The Russian exchange follows similar exchanges made by the USAEC with other countries.

Course in industrial isotope radiography has been scheduled by Oak Ridge Institute of Nuclear Studies for May 5 through 16th. Course is mainly intended for supervisory and technical people who use sealed sources. Further information is available from special training division, ORINS, P. O. Box 117, Oak Ridge, Tenn.

New pump for use in high temperature liquid metal-cooled reactors has been developed by the atomic equipment department of Westinghouse Electric Corp. The pump was tested at temperatures to 1,285 deg. F. After continuous operation for 3500-hours above 1,000-deg. F., all parts of the pump were in "excellent condition" according to W. C. Miller, atomic equipment department manager. (Other PRODUCTS, PROCESSES, INSTRUMENTS, p. 5 this LETTER.)

Merger of four uranium mining companies into one company to be known as Hidden Splendor Mining Co. has been postponed for some months, stockholders have been told. Proposed merger would involve Lisbon Uranium, Hidden Splendor, Rio de Oro Uranium Mines Inc.; and Mountain Mesa Mining Corp. All are controlled by Atlas Corp. except Mountain Mesa. (Other FINANCIAL NEWS, p. 4 this LETTER.)

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Mountain Mesa. (Other FINANCIAL NEWS, p. 4

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ATOMIC ENERGY BUSINESS NEWS...

ENGINEERING STAFFS COMBINED BY MANUFACTURERS OF EXPERIMENTAL FUSION DEVICE: A combined engineering staff organization known as C Stellerator Associates has been set up by Radio Corp. of America and Allis-Chalmers Manufacturing Co. to design the model C Stellerator and coordinate fabrication of its components. About 50 people (from both companies) will work on this thermonuclear research device which is being built for Princeton University under contracts given by the USAEC. Target date of 1960 has been set for completion of the job. Heading the fifty-man staff as project manager will be L. J. Linde, Allis-Chalmers director of electrical engineering. Associate project manager will be E. W. Herold, director of electronic research laboratory, RCA Laboratories. The model C Stellerator is to provide basic physical data on the fusion reaction. (A substantial research program on controlled fusion has been underway for over a year by General Electric Co., the company recently revealed. According to Guy Suits, GE's director of research, it will be at least five years before the process may be realistically appraised. Dr. Suits estimates that ten years will then be required to make controlled fusion technically feasible, and an additional ten years for pilot plant production. Publication by England of work accomplished there with the Zeta fusion apparatus is expected shortly; R. A. Butler, Home Secretary, told the House of Commons recently that such data would be released the early part of this year.)

NEW NUCLEAR POWER PLANT PROPOSAL MADE:- East Central Nuclear Group and the newly-formed Florida West Coast Nuclear Group have joined in submitting to the USAEC a proposal under the Commission's power demonstration reactor program for construction of a nuclear power plant at an estimated cost of $25,885,000; site would be in the Tampa Bay region. Research and development costs of $24,336,000 would be divided equally between the USAEC and the two groups. The proposal outlines a high temperature, gas-cooled, heavy water moderated, pressure tube reactor of 50,000 electrical kw capacity. It would be designed as a prototype for a later 200,000 electrical kw station which could operate on natural uranium fuel. General Nuclear Engineering Corp., Dunedin, Fla., is to be the nuclear design agent and nuclear project engineer with American Gas & Electric Service Corp. the principal design and construction engineer for the project. (The proposal replaces one presented last April by the Florida Nuclear Power Group composed of the Florida Power Corp., Tampa Electric Co., and Florida Power & Light Co. of Miami. In announcing this East Central-Florida West Coast project, the USAEC disclosed for the first time rejection of the earlier proposal and the withdrawal of Florida Power & Light from the Florida group.)

MAJOR ORGANIZATIONAL CHANGES MADE BY USAEC:- Two changes have been made by the USAEC to separate its regulatory and promotional functions covering civilian applications of nuclear energy; others are to follow. Division of Civilian Application which formerly handled regulatory and promotional functions has been abolished. In its place are the Division of Licensing and Regulation and the Office of Industrial Development. The new division will handle all licensing and regulatory functions formerly handled by the Division of Civilian Application; Harold L. Price is director. The new Office of Industrial Development will take over the job of developing overall USAEC policy for encouraging and assisting private participation in commercial applications of nuclear energy; Frank K. Pittman is director. (Separation of the USAEC's regulatory and promotional functions had been suggested in a staff report of the Joint Congressional Committee on Atomic Energy made last Summer.)

EXPORT LICENSES BEING ISSUED:- ACF Industries, N.Y., is being issued export license by the USAEC to ship to Holland a tank type, light water cooled and moderated nuclear reactor using 90% enriched uranium as fuel; maximum power level will be 20,000-thermal kw. ACF values shipment at $1,850,000. Job is for Reactor Centrum Nederland, a foundation of the Netherlands government, in Petten. Materials testing and research are projected uses to which the reactor will be put..... Export license is also being received by General Electric Co., N. Y., for shipment of 3,000 thermal kilowatt nuclear reactor of the open pool type to the Instituto Venezolano de Neurologia E Investigaciones Cerebrales, Caracas, Venezuela. Value of the shipment is put at $584,000. Instituto proposes to use the facility for production of radioisotopes for physical and biological research and medical therapy, as well as agricultural and industrial research. The reactor will also be used for training in nuclear science and engineering. (Both shipments are covered by the bi-lateral agreements made by the governments of Venezuela and Holland with the U.S.)

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NUCLEAR WORK ABROAD...

GREAT BRITAIN:- Contract in the amount of £1 million has been awarded W. E. Chivers and Sons Ltd. for the construction of the main buildings of the new Rutherford high energy laboratory of the National Institute for Research in Nuclear Science. Laboratory will be on a site adjacent the Atomic Energy Research Establishment, Harwell. Buildings are to house the new proton synchrotron being built for the Institute. Concrete and earth shielding will be provided at the sides and the roof of the magnet room, with the experimental area shielded on all sides by earth banks. Other facilities will be a control room for remote operation of the machine, together with counting rooms, an experimental preparation area of 4,000 sq. ft., and accommodation for the operating crew.

Letter of intent held by Nuclear Power Plant Co. Ltd. to construct nuclear power stations in Italy is expected to be formalized in contract early part of this year; latest date for such signing is June 30, 1958 with slight penalties for any delay. Letter of intent, sent by Mr. E. Mattei, president of AGIP-Nucleare (subsidiary of E.N.I., the Italian oil combine) covers the building of a Bradwell-type 200 MW power station by AGIP-Nucleare with N.P.P.C. responsible for the overall design and furnishing the nuclear hardware. Also agreed upon was the manufacture of nuclear reactors for sale in Europe and elsewhere by AGIP-Nucleare utilizing N.P.P.C. design and development initially and AGIP design eventually. (In Washington, D.C., the National Planning Association, 1606 New Hampshire Ave., N.W., released a study showing that Italy had greater need for a nuclear power program than any other European nation. There would be a serious balance of payments problem by 1965 if nuclear energy had not, by that time, started to supplement oil as a source of power, the study indicated.)

BELGIUM:- Organization of the Eurochemic Co. here at Mol, Belgium, which will construct a $12 million nuclear fuel plant is initial undertaking of the European Nuclear Energy Agency. Recently established by the Council of Ministers of OEEC, the Agency is to promote cooperative commercial nuclear ventures among the 17 Western European nations comprising its membership. U. S. and Canada are associate members. Chairman is Prof. L. Nicolaidis of Greece. Eurochemic will start business with $20 million of subscribed capital; France and W. Germany each will own 17% of the shares. Other participants are Austria, Belgium, Denmark, Italy, Norway, Holland, Portugal, Switzerland and Turkey. The Mol, Belgium plant which is to have an initial capacity of 100-tons of natural or slightly enriched uranium per year, is to be in operation by 1961.

FRANCE:- The firm of Pechiney (Paris) is in a position and is prepared to supply reactor-grade graphite abroad, according to the firm's graphite expert Jean-Rien Saverny. Production of the graphite is from petroleum coke which is graphitized by a patented French process and simultaneous treatment with halogenated compounds free of undesirable impurities. Pechiney is now supplying about 5,000-tons a year to the French Atomic Energy Commission of this reactor grade graphite.

FINLAND:- A Finnish association formed by several industrial firms to study nuclear energy problems, known as Voimayhoistys Ydin, is understood to be considering the building of a graphite reactor for experimental purposes. They have been negotiating with several countries to purchase the 1,500-kilos of the uranium required.

E. GERMANY:- First nuclear reactor is now in operation here at Rossendorf, near Dresden. A 2,000 kw water-cooled type, it was developed, engineered and manufactured in the Soviet Union.

BIDS ASKED, CONTRACTS AWARDED...on nuclear projects...

BIDS ASKED:- Bids for construction of reactor building, control building, and related services for the new Transient Reactor Testing Facility have now been asked by the USAEC's Idaho Falls, Idaho, office. Bid closing date is January 28th for the job which has an estimated cost range of $450,000.

CONTRACTS AWARDED:- On low bid of $241,800 W. R. Cahoon Construction Co., Pocatello, Idaho, has been awarded contract for expanding the steam plant in the aircraft nuclear propulsion area of the reactor testing station, Idaho Falls, Idaho. The firm's bid was lowest of 17 proposals made.

Contract in amount of $55,418 has been awarded Instrument Laboratory, Inc., Seattle, Wash., to install radio telemetering network at Hanford Works, Richland, Wash. Job was awarded by USAEC's Hanford operations office.

agreements made by the governments of Venezuela and Holland with the U.S.)

BOOKS & OTHER PUBLICATIONS... in the nuclear field...

On Nuclear Energy; Its Potential for Peacetime Purposes, by Donald J. Hughes, Brookhaven National Laboratory. Well written, non-technical explanation of fission; fusion; chain reactions; nuclear power; radioisotopes, etc. 263 pages. --Harvard University Press, Cambridge, Mass. ($4.75).

Atoms at Your Service, by Henry A. Dunlap, Hans N. Tuch. A non-technical discussion of nuclear energy. 181 pages. --Harper & Bros., New York 16, N.Y. ($3.50)

Atomic Energy in Agriculture, by William E. Dick. Radiation and radioisotopes as used experimentally in agriculture. 150 pages. Philosophical Library, Inc., New York 16, N. Y. ($6.00)

Radiation Effects in Solids, by G. J. Dienes, G. H. Vineyard, Brookhaven National Laboratory. Vol. 2 of this work on the effect of ionizing radiation on engineering materials. 234 pages. ($6.50)..... High Energy Nuclear Physics; compiled and edited by G. Ascoli, G. Feldman, et al. Proceedings of the seventh Annual Rochester Conference, Apr. 15-19, 1957. 495 pages. ($4.50) --Interscience Publishers, Inc., New York 1.

Chemistry of the Rare Radioelements, by K. W. Bagnall. Collection of all published data on elements from polonium to actinium, with extensive bibliography. 177 pages. --Academic Press, Inc., New York 3. ($5.00)

Zirconium, by G. I. Miller. Second edition of a very complete handbook on this metal. 526 pages. --Butterworths Scientific Publications, London, Eng. (£4 10s)

Nuclear Energy in Britain. An account of nuclear power development in Britain. (3s)..... Accident at Windscale No. 1 Pile on 10 Oct. 1957. Report of the Penney committee. (1s 3d) --H. M. Stationery Office, York House, Kingsway, London WC2, England.

Reactor Safety Conference; Part 1. Compilation of four, of the five papers at this Oct., 1957, conference. No. TID-7549. (75¢)..... Economics of Nuclear Power. Bibliography of 39 USAEC and 19 non-USAEC reports. No. TID-3510. (15¢)..... Survey of Radioactive Waste Disposal; with bibliography. Report prepared at Chemical & Radiological Laboratories, Army Chemical Center, Md. No. PB-131085. (50¢)..... Symposium on the Reprocessing of Irradiated Fuels. Collected papers of this May 20-25, 1957 conference held at Brussels, Belgium. 1,165 pages. No. TID-7534. ($10.50). --Above from Office of Tech. Services, Washington 25, D. C.

ATOMIC ENERGY FINANCIAL NEWS...

MERGER OF METAL FIRMS APPROVED:- Shareholders of Climax Molybdenum Co., and American Metal Co., Ltd., at separate meetings last fortnight voted approval of the merger of the two firms into American Metal with the surviving firm known as American Metal Climax, Inc. Shareholders of Climax will receive three shares of American Metal Climax for each share of Climax held; American metal shareholders would retain the present shares they own. An increase in authorized common shares of American Metal Co. from 10 million no par value to 20 million $1 par value, authorized by the shareholders, preceded the merger. (Climax Molybdenum had originally been organized by American Metal. In addition to molybdenum, it has extensive uranium holdings, particularly through Climax Uranium, which it controls. American Metal has large ore holdings and investments, mainly in copper, both in the U. S. and in Africa.)

FINANCING OF NUCLEAR FUELS TO BE HANDLED:- The Export-Import Bank will finance the lease or purchase of nuclear fuels in connection with nuclear power loans, according to Edward Lynch, the bank's atomic energy advisor. He noted that this is a departure from its general policy of not financing raw-materials requirements in foreign industrial projects, and that such loans may also be extended to equipment manufactured in the U. S. to be installed in reactors abroad.

NEW FINANCING PLANNED BY URANIUM PRODUCER:- Higher costs than were originally estimated for construction of its surface plant at its Blind River property requires Can-Met Explorations to raise additional funds to complete its building and mine development program, S. B. Roman, president, has told his shareholders. This will be through a $2,000,000 general mortgage bond issue. To market the bonds a substantial bonus of shares will be required, Mr. Roman points out; approval of shareholders has been given to an increase in capital of 500,000 shares which will aid in bonusing this mortgage bond issue. Meanwhile the company has made a temporary bank loan of $4,200,000; proceeds of the bond issue are to help reduce this bank loan. (Despite news of the bonus, which will dilute present equity to some extent, Can-Met sold higher on the Canadian exchange following news of this new general mortgage bond issue.)

ATOMIC ENERGY PATENT DIGEST...latest grants...

ISSUED December 24, 1957 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:- (1) Beta ray hydrogen density indicator. R. B. Jacobs, E. C. Greanias, inventors. No. 2,817,764 assigned to Standard Oil Co., Chicago, Ill. (2) Radiation alarm for indicating the presence of penetrating radiation above a predetermined value. M. H. Shamos, inventor. No. 2,817,768 assigned to Tung-Sol Electric, Inc., Newark, N. J.

ISSUED December 24, 1957 to GOVERNMENT ORGANIZATIONS:- (1) Device for control of oxygen partial pressure, H. Bradner, H. S. Gordon, inventors. No. 2,817,350 assigned to USAEC. (2) Method for sealing the pores in a carbon body. M. C. Sanz, C. R. Malstrom, J. M. Nuding, H. P. Yockey, inventors. No. 2,817,605 assigned to USAEC. (3) Ion source for a calutron. J. G. Backus, inventor. No. 2,817,763 assigned to USAEC.

ISSUED December 31, 1957 to GOVERNMENT ORGANIZATIONS:- (1) Gas metering pump. C. M. George, inventor. No. 2,818,208 assigned to USAEC. (2) Liquid-liquid extraction columns. J. D. Thornton, inventor. No. 2,818,324 assigned to USAEC. (3) Method for producing malleable and ductile beryllium bodies. H. W. Dodds, inventor. No. 2,818,339 assigned to USAEC. (4) Logarithmic feedback amplifier. J. A. De Shong, Jr., inventor. No. 2,818,504 assigned to USAEC. (5) Velocity selector method for separation of isotopes. R. J. Britten, inventor. No. 2,818,507 assigned to USAEC. (6) Radiac survey meter. J. M. Johnston, inventor. No. 2,818,509 assigned to Department of the Army.

PRODUCTS, PROCESSES, INSTRUMENTS...for nuclear lab & plant...

FROM THE MANUFACTURERS:- New automatic sample changer with print-out to handle large numbers of radioactive samples for counting and recording is now offered by Baird Atomic Inc., Cambridge, Mass. Features of the instrument are its ability simultaneously to count betas from top and gammas from bottom of sample; quadruple programming and automatic coding of samples; storage without re-loading of samples for later repeat runs; and positive lockings against errors.

Package nuclear engineering program, complete with subcritical reactor, is being offered colleges and universities by Nuclear-Chicago, Inc., Chicago, Ill. The sub-critical reactor and all the nuclear instrumentation in the complete "package" are in categories for which the USAEC will consider giving educational institutions financial assistance. The uranium and neutron source required are available to schools without charge from the USAEC.

PRODUCT NOTES:- Specifications for uranium-233 produced in private nuclear reactors in the U. S., for which the USAEC pays a guaranteed price, have been published in the Federal Register of Dec. 28, 1957. The specifications cover the chemical and physical composition; form of the material; and its packaging.

MANUFACTURERS' LITERATURE:- Brochure describing the radiation hazards protection services offered by Controls for Radiation, Inc., is available from the company at 130 Alewife Brook Parkway, Cambridge 40, Mass.

New bulletin describing nuclear equipment it offers for sample counting is available from Tracerlab, Inc., Waltham 54, Mass.

NUCLEAR REACTOR NEWS:- Homogeneous reactor experiment No. 2 achieved criticality last fortnight at Oak Ridge National Laboratory; it was the sixth experimental or full-scale reactor to go into operation in the U. S. during 1957. Utilizing a suspension of nuclear fuel in water which serves as coolant and moderator, the reactor has a heat output of 5,000 kw.

In experiments at Argonne National Laboratory, the operating power level of the experimental boiling water reactor there has been raised from its design level of 20,000 kw of heat to 50,000 kw. After some 10-months of experimentation, it was found that with control rods further withdrawn than at the design level, water in the core boiled at a higher than normal rate, resulting in faster re-circulation through the core and in more rapid removal of heat. According to J. M. Harrer, project chief at Argonne for this reactor, every indication is that the maximum stable power is several times higher than its 20,000 kw design level.

Sincerely,

The Staff,
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ng news of this new general mortgage bond issue.)

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